REMARKS

Claims 1-20 and 22-29 remain pending in the application. Claims 21 and 30 were previously cancelled. In the Final Office Action, the Examiner rejected claims 1-4, 6-9, 17, 26-27, and 29. The Examiner objected to claims 5, 10, 18-20, and 28, and allowed claims 11-16 and 22-25. By this response, claims 1-20 and 22-29 continue without amendment. In view of the following discussion, Applicants submit that none of the claims now pending in the application are anticipated under the provisions of 35 U S.C. §102 or obvious under the provisions of 35 U.S.C. §103. Thus, Applicants believe that all of these claims are now in condition for allowance.

I. Objections

The Examiner has objected to claims 5, 10, 18-20, and 28 as being dependent upon a rejected base claim. The Examiner concludes that these claims would be allowable subject matter if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants thank the Examiner for indicating the allowable subject matter with respect to these claims. However, in view of the arguments set forth herein, Applicants believe base claims 1, 17 and 26 (and all intervening claims) are in allowable form and, as such, the dependent claims 5, 10 and 18-20, and 28 as they stand are, therefore, in allowable condition. Therefore, Applicants respectfully request that the foregoing objections to claims 5, 10, 18-20, and 28 be withdrawn.

II. Rejection of Claims 1, 2, 6, 26 and 27 under 35 U.S.C. § 102

Claims 1, 2, 6, 21, 26, 27 and 30 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Brumitt. (US 5,563,988) (Brumitt). Applicants respectfully traverse the rejection.

The Examiner stated that Brumitt teaches a method of performing vision processing using a ground plane that is defined by a depth map. The Examiner contends that Brumitt teaches that the "depth map is based on an assumed ground plane" and that the depth map is compensated for "differences between the assumed ground plane and the actual ground plane." (Final Office Action, p.3). The Examiner

concluded that Brumitt anticipates Applicants invention. Applicants respectfully disagree.

More specifically, Brumitt teaches a process for tracking objects using a stereo camera. The images from the camera are processed to separate foreground objects from a background. The foreground image is segmented to separate objects in the imaged scene. These segmented regions are projected onto a ground plane. As stated at col. 11, line 66 to col. 12, line 9, the ground plane is derived by processing the minimum and maximum depth of a group of pixels in the depth map to identify corners and edges of the ground plane. The moving objects can be tracked and analyzed by processing the projected pixels.

Brumitt, however, does not teach each and every element of Applicants' claim 1. Namely, Brumitt does not teach or suggest compensating a depth map that is based on an assumed ground plane for differences between the assumed ground plane and an actual ground plane, as recited in Applicants' claim 1. With respect to a depth map, Brumitt states the following:

> The present location process uses a series of range images to locate persons or other non-stationary objects of interest in a scene captured by the images. Referring to FIG. 3, these range images preferably take the form of a continuous temporal sequence of depth maps created from stereo images taken of a scene with an appropriate camera at a fixed position (process action 300).

(Brumitt, col. 7, l. 66 – col. 8, l. 5.). No where does Brumitt state that the "continuous temporal sequence of depth maps" is based on an assumed ground plane. In fact, Brummit devoid of any mention of an assumed ground plane.

As noted above, Brumitt discloses identifying minimum and maximum depths, which are then used to define ground plane boundaries of a scene. The Examiner argues that these minimum and maximum depths teach assumed ground planes. (Final Office Action, p. 2). Even if these minimum and maximum depths can be considered assumed ground planes, there is no teaching or suggestion in Brumitt that any of the depth maps are initially based on one of them. Applicants' claim 1 specifically states that the depth map is based on an assumed ground plane. Nor is there any teaching or suggestion in Brumitt that any of the depth maps are compensated for differences between one of these minimum and maximum depths and an actual ground plane.

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Rather, Brumitt merely states that these minimum and maximum depths are used to identify corners and edges of the ground plane. As such, these minimum and maximum depths do not teach or suggest the particular assumed ground plane recited in Applicants' claim 1.

To anticipate Applicants' invention, Brumitt must teach each and every element, as arranged in the claim. Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 USPQ 481, 485 (Fed. Cir. 1984). Since Brumitt does not teach compensating a depth map that is based on an assumed ground plane for differences between the assumed ground plane and an actual ground plane, Brumitt does not anticipate Applicants' invention recited in claim 1. Therefore, Applicants contend that claim 1 is not anticipated by Brumitt and, as such, fully satisfies the requirements of 35 U.S.C. §102.

Independent claim 26 recites features similar to those of claim 1 emphasized above. For the same reasons, Applicants contend that Brumitt does not anticipate claim 26. Claims 2, 6, and 27 depend either directly or indirectly from claims 1 and 26 and, for the same reasons stated above, are patentable over Brumitt. In view of these remarks, Applicants respectfully request the rejection of claims 1, 2, 6, 26 and 27 be withdrawn.

III. Rejection of Claims 2 – 4, 6 – 9, 17 and 29 under 35 USC § 103

A. Claims 2-4, 6 and 7

Claims 2-4, 6 and 7 stand rejected under 35 USC § 103(a) as being obvious over Brumitt in view of Gokturk et al. (U.S. Patent Application Publication 2003/01699060), (Gokturk). Applicants respectfully disagree.

Claims 2-4 and 6-7 depend from claim 1 and recite additional features therefor. As discussed above, Brumitt does not teach or suggest compensating a depth map that is based on an assumed ground plane for differences between the assumed ground plane and an actual ground plane. Gokturk teaches a method of object classification for objects within a scene. The process, as described in paragraph 0065 et seq., segments the background and foreground of an image then processes the foreground information using various classification algorithms. Gokturk is devoid of any teaching or suggestion

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of using a ground plane or that depth map is based on an assumed ground plane. As such, Gokturk fails to bridge the substantial gap left by Brumitt. No conceivable combination of the teachings of Gokturk and Brumitt would result in compensation of a depth map that is based on an assumed ground plane for differences between the assumed ground plane and an actual ground plane. Therefore, Applicants contend that claims 2-4 and 6-7, which depend from claim 1, are patentable over the cited combination and, as such, fully satisfy the requirements of 35 U.S.C.§103. Applicants respectfully request the rejection be withdrawn.

B Claims 8, 9, 17 and 29

Claims 8, 9, 17 and 29 stand rejected under 35 USC § 103(a) as being obvious over Brumitt in view of Trajkovic et al. (U.S. Patent Application Publication 20030112132) (Trajkovic). Applicants respectfully disagree.

As discussed above, Brumitt does not teach or suggest the use of a depth map based on, or referenced to, an assumed ground plane. Trajkovic teaches a method of detecting hazardous traffic conditions by analyzing images to detect objects (e.g., street signs) within a scene. Trajkovic is devoid of any teaching or suggestion of using a ground plane. As such, Trajkovic fails to bridge the substantial gap left by Brumitt. No conceivable combination of the teachings of Trajkovic and Brumitt would result in use of a depth map based on, or referenced to, an assumed ground plane.

As such, independent claims 17 and 29 and dependent claims 8 and 9, which depend from claim 1, are patentable under 37 U.S.C. § 103. Applicants respectfully request the rejection be withdrawn.

IV. Allowable Subject Matter

Applicants thank the Examiner for indicating that claims 11-16 and 22-25 are allowable.

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Conclusion

Thus, the Applicants submit that all of these claims now fully satisfy the requirements of 35 U.S.C. §§ 102 and 103. Consequently, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the issuance of a final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Kin-Wah Tong, Esq. or Mr. Robert M. Brush, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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Patterson & Sheridan, LLP
595 Shrewsbury Avenue
Shrewsbury, New Jersey 07702

Robert M. Brush, Attorney
Reg. No. 45,710
(732) 530-9404

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